Report of Geotechnical Investigation

Juan Blanco's Tacos + Tequilla
1655 East Auburn Road
Rochester Hills, Michigan 48307

Latitude 42.637814° N
Longitude 83.099287° W

Prepared for:

3 Feathers Contracting
16615 30 Mile
Ray Township, Michigan 48096

G2 Project No. 220103
March 3, 2022

g2consultinggroup.com

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March 3, 2022

Mr. Camiel DeWolf
3 Feathers Contracting
16615 30 Mile
Ray Township, Michigan 48096

Re: Report on Geotechnical Investigation
Juan Blanco's Tacos + Tequila
1655 East Auburn Road
Rochester Hills, Michigan 48307
G2 Project No. 220103

Dear Mr. DeWolf:

We have completed the geotechnical investigation for the proposed additions and site improvements to be constructed to the existing building in Rochester Hills, Michigan. This report presents the results of our observations and analyses and our recommendations for earthwork operations, foundation design, pavement design, and construction considerations as they relate to the geotechnical conditions on site.

We appreciate the opportunity to be of service to 3 Feathers Contracting and look forward to discussing the recommendations presented. In the meantime, if you have any questions regarding the report or any other matter pertaining to the project, please call us.

Sincerely,

G2 Consulting Group, LLC

Amy L. Schneider, P.E.
Project Manager

Noel J. Hargrave-Thomas, P.E.
Principal

ALS/NJHT/ljv

EXECUTIVE SUMMARY

An existing 3,018 square foot, slab-on-grade building is currently located in the center of the overall property. Two single-story, slab-on-grade additions (323 square feet and 410 square feet in area) will be constructed on the north side of the existing building. An outdoor event/game area with a permeable surface will be constructed north of the existing building.

Approximately 4 inches of silty sand topsoil are present at soil boring B-2. Approximately 6 to 8 inches of sandy gravel fill are present at the ground surface at borings B-1 and B-4. Loose silty sand fill and gravelly sand fill underlie the surface fill and topsoil at the boring locations and extend to approximate depths ranging from 1 to 3 feet. Native loose to medium compact sand, silty sand, and gravelly sand are present below the fill and extend to the explored depths. Groundwater was encountered at borings B-1 and B-2 during drilling operations at an approximate depth of 12 feet. No measurable groundwater was encountered during drilling operations at borings B-3 and B-4.

An exterior second-story deck supported on timber beams will be demolished within the footprint of the proposed north addition. Any associated foundations must also be completed removed. A qualified geotechnical engineer or field technician must be on-site during demolition and removal operations in order to verify that all the foundations, debris, and fill have been removed to the underlying native soils and any resulting excavations backfilled in an engineered manner for support of the proposed foundations and floor slabs

We recommend the proposed additions be supported on conventional shallow spread and/or strip footings extending through any existing fill and bearing within the native loose to medium compact sand, silty sand, or engineered fill overlying native soils within demolished foundation excavations. A net allowable soil bearing capacity of 2,000 pounds per square foot (psf) can used for design of foundations bearing on the aforementioned soils. Exterior footings must bear at a minimum depth of 3-1/2 feet below finished grade for protection against frost heave. Interior footings can bear at shallower depths provided suitable bearing soils are present and they are protected from frost penetration. Foundations installed immediately adjacent to the existing building foundations must bear at the same depth as the existing foundations. Under no circumstances shall excavations extend below adjacent foundations without proper underpinning. Therefore, prior to excavation operations adjacent to the existing structure, we recommend the bearing depth of the existing foundations be determined to avoid potentially undermining the foundations during excavation operations for the new foundations. We recommend a G2 Consulting Group, LLC (G2) engineer or technican be on site during construction to observe the foundation excavations, measure the bearing depth, and confirm the adequacy of the bearing soils.

Provided the potential for floor slab settlement can be tolerated, we anticipate the existing fill can remain in place for support of the addition floor slabs following completion of subgrade preparation as presented in the SITE RECOMMENDATIONS section of this report. If the potential for floor slab settlement cannot be tolerated, all existing fill within the footprint of the proposed additions must be completely removed to the underlying native soils and recompacted in an engineered manner for support of the proposed floor slabs.

Do not consider this summary separate from the entire text of this report, with all the conclusions and qualifications mentioned herein. Details of our analyses and recommendations are discussed in the following sections and in the Appendix of this report.

PROJECT DESCRIPTION

An existing 3,018 square foot, slab-on-grade building is currently located in the center of the overall property. Two single-story, slab-on-grade additions (323 square feet and 410 square feet in area) will be constructed on the north side of the existing building. An outdoor event/game area with a permeable surface will be constructed north of the existing building. An exterior second-story deck supported on timber beams is present within the footprint of the proposed northeast addition.

No loading conditions were available at the time of this investigation. We anticipate wall loads for the additions may be on the order of 1 to 2 kips per lineal foot. If the loading conditions and proposed grades differ/change from what has been stated above, G2 should be notified so we can review the recommendations provided herein.

SCOPE OF SERVICES

The field operations, laboratory testing, and engineering report preparation were performed under the direction and supervision of a licensed professional engineer. Our services were performed according to generally accepted standards and procedures in the practice of geotechnical engineering. Our scope of services for this project is as follows:

1. We drilled four soil borings throughout the property. One boring was performed within each of the proposed additions extending to a depth of 15 feet each. One boring was drilled in the pervious pavement area extending to a depth of 10 feet. One boring was drilled in the bituminous parking lot at the north side of the property extending to a depth of 5 feet.

2. We performed laboratory testing on representative samples obtained from the soil borings. Laboratory testing included visual engineering classification and grain size analysis.

3. We prepared this engineering report. Our report includes recommendations regarding the foundation types, subgrade preparation, pavement design, and construction considerations related to site preparation and foundation construction.

FIELD OPERATIONS

G2 Consulting Group, LLC (G2) selected the number, depth, and location of the soil borings based on the addition locations, site improvements, and existing site features. The soil boring locations were determined in the field by a G2 engineer using conventional taping methods from existing site features prior to drilling operations. The approximate soil boring locations are shown on the Soil Boring Location Plan, Plate No. 1. Ground surface elevations were interpolated from the Site Plan prepared by Chippewa Consulting (Sheet No. 1), dated September 29, 2020.

The soil borings were drilled using a truck mounted rotary drilling rig. Continuous flight 2-1/4 inch inside diameter, hollow-stem augers were used to advance the boreholes to the explored depths. Within each soil boring, soil samples were obtained at intervals of 2-1/2 feet within the upper 10 feet and at intervals of 5 feet thereafter. The samples were obtained by the Standard Penetration Test method ASTM D 1586, which involves driving a 2-inch diameter split-spoon sampler into the soil with a 140-pound weight falling 30 inches. The sampler is generally driven three successive 6-inch increments with the number of blows for each increment recorded. The number of blows required to advance the sampler the last 12 inches is termed the Standard Penetration Resistance (N). The blow counts for each 6-inch increment and the resulting N-value are presented on the individual soil boring logs.

The soil samples were placed in sealed containers in the field and brought to the laboratory for testing and classification. During drilling operations, the crew maintained logs of encountered subsurface conditions, including changes in stratigraphy and observed groundwater levels. The final boring logs are based on the field logs supplemented by laboratory soil classification and test results. After completion of the drilling operations, the boreholes were backfilled with the auger cuttings.

LABORATORY TESTING

Representative soil samples were subjected to laboratory testing to determine soil parameters pertinent to foundation design, pavement design, and site preparation. An experienced geotechnical engineer classified the soils in general conformance with the Unified Soil Classification System. Laboratory testing included grain-size distribution. The grain-size distributions were determined in general accordance with ASTM D422, "Standard Test Method for Particle-Size Analysis of Soils".

The grain-size distribution determinations are presented graphically on Figure No. 5 in the Appendix. We will hold the soil samples for 60 days from the date of this report, after which time they will be discarded. If you would like us to retain the samples beyond this period, or you would like the soil samples, please let us know.

SITE DESCRIPTION

The subject parcel is located at 1655 East Auburn Road in Rochester Hills, Michigan. An existing slab-on-grade building is currently located on the property, with the south half being single-story and the north half being two-stories. A new bituminous parking lot surrounded by concrete sidewalk is present west of the building. A gravel parking lot is present east of the building, with some grass covered areas. The overall property is relatively flat with an average elevation of 714-1/2 feet. A bituminous alley extends along the east property line. A chain link fence surrounds the perimeter of the east side of the property. Surrounding properties are commercial in nature.

SOIL CONDITIONS

Approximately 4 inches of silty sand topsoil are present at soil boring B-2. Approximately 6 to 8 inches of sandy gravel fill are present at the ground surface at borings B-1 and B-4. Silty sand fill and gravelly sand fill underlie the surface fill and topsoil at the boring locations and extend to approximate depths ranging from 1 to 3 feet. Native sand, silty sand, and gravelly sand are present below the fill and extend to the explored depths.

The silty sand fill and gravelly sand fill are loose in compactness with Standard Penetration Test N-values ranging from 6 to 8 blows per foot. The native granular soils are loose to medium compact with N-values ranging from 7 to 18 blows per foot.

The stratification depths shown on the soil boring logs represent the soil conditions at the boring locations. Variations may occur between borings. Additionally, the stratigraphic lines represent the approximate boundaries between soil types. The transitions may be more gradual than what are shown. We have prepared the boring logs on the basis of laboratory classification and testing as well as field logs of the soils encountered.

The Soil Boring Location Plan, Plate No. 1, Soil Boring Logs, Figure Nos. 1 through 4,, and Grain Size Distribution, Figure No. 5, are presented in the Appendix. The soil profiles described above are generalized descriptions of the conditions encountered at the boring locations. General Notes Terminology defining the nomenclature used on the boring logs and elsewhere in this report is presented on Figure No. 6.

GROUNDWATER CONDITIONS

Groundwater was encountered at borings B-1 and B-2 during drilling operations at an approximate depth of 12 feet. No measurable groundwater was encountered during drilling operations at borings B-3 and B-4. Fluctuations in groundwater levels should be anticipated due to seasonal variations and following periods of prolonged precipitation.

SITE PREPARATION RECOMMENDATIONS

We anticipate earthwork operations will consist of removing the existing topsoil and vegetation within the proposed additions and pavements, demolishing the existing deck and removing all associated foundations, removing existing utilities in the footprint of the proposed additions, backfilling all resulting excavations with granular engineered fill, preparing the site subgrade for floor slab and pavement support, and excavating new foundations and utilities. We recommend all earthwork operations be performed in accordance with comprehensive specifications and be properly monitored in the field by qualified geotechnical engineers and technicians.

At the start of earthwork operations, the existing topsoil and vegetation must be completely removed from the footprint of the proposed additions and pavements. The existing deck at the northeast side of the building will be demolished and any associated foundations must be completed removed. Any existing utilities present within the proposed additions should be completely removed. The resulting excavations should be observed by a qualified engineer for stability and then backfilled with granular engineered fill for support of proposed foundations, floor slabs, and pavements. Existing utilities outside the proposed building addition footprints may be left in place provided they are filled with grout.

The exposed granular subgrade at the ground surface should be thoroughly proof compacted using a heavy vibratory drum roller making a minimum 10 passes in two perpendicular directions. The subgrade should be statically roller within 25 feet of the existing building. This will densify the upper very loose to loose granular soils for support of floor slabs and pavements. Any remaining unstable or unsuitable areas should be densified with additional compaction or undercut and replaced with engineered fill.

Any engineered fill should consist of an approved, environmentally clean material free of organic matter, frozen soil, clods, or other harmful material. Engineered fill should be placed in uniform horizontal layers, not more than 9 inches in loose thickness. The engineered fill should be compacted to achieve a density of at least 95 percent of the maximum dry density, as determined by the Modified Proctor compaction test (ASTM D 1557). Granular fill should be compacted within 2 percent above or below optimum moisture content. Frozen material should not be used as fill, nor should fill be placed on a frozen subgrade.

We recommend using granular engineered fill within confined areas such as utility trenches, demolished foundation excavations, and adjacent to foundation walls and catch basins. Granular engineered fill is generally more easily compacted than cohesive soils within these confined areas. Additionally, the proper placement and compaction of backfill within these areas is imperative to provide adequate support for overlying floor slabs and pavements. The granular soils on-site meeting the criteria above will be suitable for reuse as engineered fill.

FOUNDATION RECOMMENDATIONS

We recommend the proposed additions be supported on conventional shallow spread and/or strip footings extending through any existing fill and bearing within the native loose to medium compact sand, silty sand, or engineered fill overlying native soils within demolished foundation excavations. A net allowable soil bearing capacity of 2,000 psf can used for design of foundations bearing on the aforementioned soils. Exterior footings must bear at a minimum depth of 3-1/2 feet below finished grade for protection against frost heave. Interior footings can bear at shallower depths provided suitable bearing soils are present and they are protected from frost penetration. We recommend a G2 engineer or technican be on site during construction to observe the foundation excavations, measure the bearing depth, and confirm the adequacy of the bearing soils.

Foundations installed immediately adjacent to the existing building foundations must bear at the same depth as the existing foundations. Under no circumstances shall excavations extend below adjacent

foundations without proper underpinning. Therefore, prior to excavation operations adjacent to the existing structure, we recommend the bearing depth of the existing foundations be determined to avoid potentially undermining the foundations during excavation operations for the new foundations.

Continuous wall or strip footings should be at least 16 inches in width and isolated spread footings should be at least 30 inches in their least dimension. We recommend all strip footings be suitably reinforced to minimize the effects of differential settlements associated with local variations in subsoil conditions. If required to construct foundations at different levels, the adjacent foundations should be designed and constructed so the least lateral distance between the foundations is equivalent to or more than the difference in their bearing levels. To achieve a change in the level of a strip footing, the footing should be gradually stepped at a grade no steeper than two units horizontal to one unit vertical. We recommend new and existing building sections be structurally separated to allow for independent movements.

If the recommendations outlined in this report are adhered to, total and differential settlements for the completed structures should be within 1 inch and 1/2 inch, respectively. We expect settlements of these magnitudes are within tolerable limits for the types of structures proposed.

FLOOR SLAB RECOMMENDATIONS

Provided the potential for floor slab settlement can be tolerated, we anticipate the existing fill can remain in place for support of the floor slabs for the proposed additions following completion of subgrade preparation as presented in the SITE RECOMMENDATIONS section of this report. A modulus of subgrade reaction value (k) of 100 pounds per cubic inch (pci) may be used in design of floor slabs supported on the existing fill soils.

If the potential for floor slab settlement cannot be tolerated, all existing fill within the footprint of the proposed additions must be completely removed to the underlying native soils and recompacted in an engineered manner for support of the proposed floor slabs. A modulus of subgrade reaction value (k) of 150 pci may be used in design of floor slabs supported on the engineered fill overlying native soils.

If greater protection against vapor transmission is desired, a vapor barrier, consisting of at least 10-mil plastic sheeting, may be placed over the capillary break layer beneath floor slabs. We recommend all concrete floor slabs be suitably reinforced and separated from the foundation system to allow for independent movement.

PAVEMENT RECOMMENDATIONS

Based on the provided plans, bituminous concrete pavement will be constructed along the north side of the property. Additionally, an outdoor area for events and games with a permeable surface will be constructed north of the building. No information on the composition of the pavement (bituminous or concrete) was av available at the time of this report.

We anticipate the traffic at the north parking area will be passenger vehicles. For a design life of 20 years, we estimate these light-duty areas may result in approximately 50,000 equivalent 18-kip single-axle loads (ESALs) for the pavements. We performed pavement design analysis in accordance with the "AASHTO Guide for Design of Pavement Structures."

Based on the expected granular subgrade soils, we recommend the subgrade soils be assigned an effective roadbed resilient modulus of 8,000 pounds per square inch (psi) for use in pavement design. For evaluation purposes, we estimated a serviceability loss of 2.2, a reliability factor of 0.95, and a standard deviation of 0.45 for flexible pavement design. Based on the results of our analysis, we recommend the following minimum pavement design cross sections:

Flexible Pavement Section		
Material	**Thickness**	**Structural Coefficient**
MDOT 5E1 Bituminous Wearing Course	2 inches	0.42
MDOT 4E1 Bituminous Leveling Course	2 inches	0.42
MDOT 21AA Aggregate Base Course (dense-graded)	8 inches	0.14

Large front-loading refuse trucks can impose significant concentrated wheel loads within trash dumpster pick-up areas. This type of loading can result in rutting of asphalt pavements and ultimately in failure. Therefore, we recommend reinforced concrete pavement be used in these areas. The concrete pad should be large enough to support the entire refuse truck during pick-up operations.

Asphalt pavement material specifications are specified within the 2012 Pavement Design and Selection Manual for the Michigan Department of Transportation. The bituminous pavement materials are described in Sections 400 through 448, the concrete pavement materials are described in Section 601, and the aggregate materials for dense-graded base and asphalt are described in Section 902. Per MDOT specifications, the asphalt pavement materials can be assigned a structural coefficient number of 0.42, and MDOT 21AA dense-graded aggregate base can be assigned a structural coefficient number of 0.14.

Proper drainage is an important consideration for pavement design. The pavement and subgrade should be properly sloped to promote effective surface and subsurface drainage and prevent water ponding. We recommend regular timely maintenance be performed on the pavement to reduce the potential deterioration associated with moisture infiltration through surface cracks. The owner should be prepared to seal the cracks with a hot-applied elastic crack filler as soon as possible after cracking develops and as often as necessary to block the passage of water to the subgrade soils. We recommend that crack sealing be performed on a yearly basis for pavements that are in good and fair condition to extend the life of the pavements.

We performed grain-size analyses in areas where a permeable surface is proposed (boring B-3) and have provided estimated infiltration rates for the granular soils based on Hazen's (1930) permeability approximation. This method relates the D_{10}, the effective diameter through which 10 percent of the sample is finer, to the permeability. Please note significant variations in localized infiltration rates can occur due to the relative compactness of the soil layer and variations in the overall grain size distribution for an individual layer. The grain size results are presented on Figure No. 5 in the Appendix. The following table provides the results for the infiltration rates at various locations, presented as inches per hour (iph - unfactored).

Soil Boring	Soil Type (USCS)	Tested Depth (ft)	Infiltration Rate (iph)
B-3	Silty Sand (SM)	2-1/2 feet	8
	Silty Sand (SM)	5 feet	9

In the event porous pavements are used for this project, we recommend pervious pavements be tested to verify their conformity with project specifications prior to the acceptance on-site. The Michigan Concrete Association recommends creating an on-site test panel and performing a battery of tests prior to their acceptance. The following are a list of suggested test methods to use prior to the acceptance of the pervious concrete mix and placement methods:

- ASTM C1688 – Density and Void Content of Freshly Mixed Pervious Concrete
- ASTM C1701 – Infiltration Rate of In-Place Pervious Concrete
- ASTM D1754 – Density and Void Content of Hardened Pervious Concrete
- ASTM C1747 – Determining Potential Resistance to Degradation of Pervious Concrete by Impact and Abrasion

We recommend that a qualified geotechnical engineer or technician be present on-site during construction to verify that soils at the base of the proposed permeable section are consistent with soil conditions identified within this report. Furthermore, we recommend an experienced quality control technician be present on site in order to perform the aforementioned battery of tests in the event pervious pavements are used

CONSTRUCTION CONSIDERATIONS

We do not anticipate groundwater will be encountered during demolition and foundation excavation operations. Any surface run-off will be controllable with properly constructed sumps and pumps.

Caving and/or sloughing of the granular soils will occur within foundation excavations. Therefore, the contractor should be prepared to over excavate and form foundations within the granular soils, as necessary. The sides of the spread and/or strip footing foundations should be constructed straight and vertical to reduce the risk of frozen soil adhering to the concrete and raising the foundations.

Where excavations extend deeper than 5 feet and sufficient space is available, we recommend maximum slope of 2 horizontal units to 1 vertical unit (2H:1V) within the very loose to loose granular soils. Slopes should be barricaded to prevent vehicles and storage loads within 10 feet of the tops of the slopes. If the temporary construction excavations are to be maintained during the rainy season, berms are suggested along the tops of the slopes to prevent runoff water from entering the excavation and eroding the slope faces.

All excavations should be safely sheeted, shored, sloped, or braced in accordance with MI-OSHA requirements. If material is stored or equipment is operated near an excavation, lower angle slopes or stronger shoring must be used to resist the extra pressure due to the superimposed loads. Care should be exercised when excavating near existing structures, roadways, or utilities to avoid undermining. Under no circumstances should excavations extend below existing structures or utilities without underpinning.

GENERAL COMMENTS

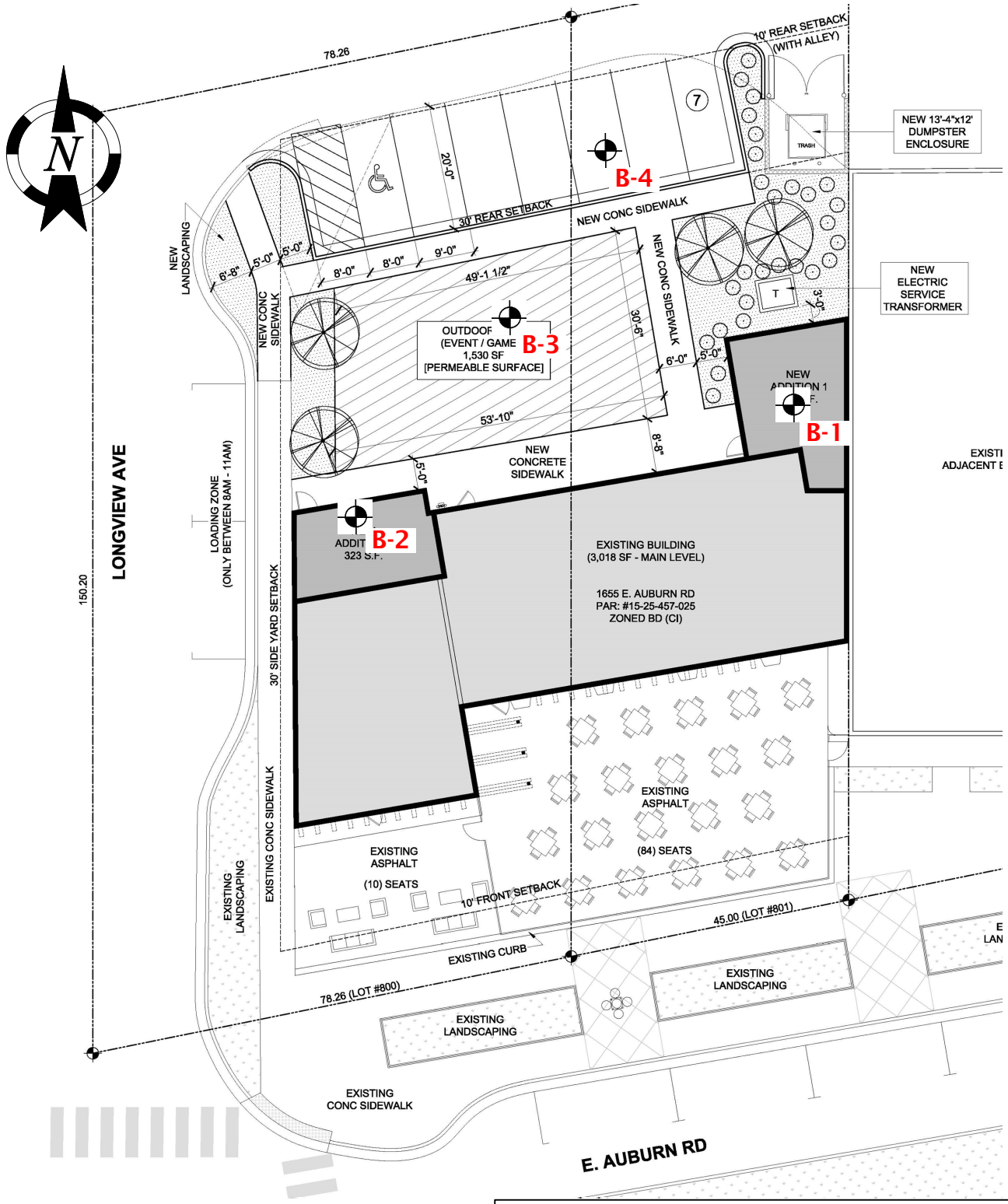
We have formulated the evaluations and recommendations presented in this report relative to site preparation on the basis of data provided to us relating to the location and anticipated surface grade for the proposed site. Any significant change in this data should be brought to our attention for review and evaluation with respect to the prevailing subsurface conditions.

The scope of the present investigation was limited to evaluation of subsurface conditions for the support of proposed additions and pavements and other related aspects of the development. No chemical, environmental, or hydrogeological testing or analyses were included in the scope of this investigation.

We base the analyses and recommendations submitted in this report upon the data from the soil borings performed at the approximate locations shown on the Soil Boring Location Plan, Plate No. 1. This report does not reflect variations that may occur between the actual boring locations and the actual structure locations. The nature and extent of any such variations may not become clear until the time of construction. If significant variations then become evident, it may be necessary for us to re-evaluate our report recommendations.

We recommend a qualified geotechnical engineering firm observe all geotechnical related work, including subgrade preparation and engineered fill placement. The consulting firm will perform the appropriate testing to confirm the geotechnical conditions given in the report are found during construction.

APPENDIX



Legend

Soil Boring Drilled by Strata Drilling, Inc. on February 24, 2022

Soil Boring Location Plan

Juan Blanco's Tacos + Tequilla
1655 East Auburn Road
Rochester Hills, Michigan 48307

2G CONSULTING GROUP

Project No. 220103	
Drawn by: ALS	
Date: 3/2/22	Plate No. 1
Scale: NTS	

Project Name: Juan Blanco's Tacos + Tequila

Project Location: 1655 E. Auburn Road
Rochester Hills, Michigan 48307

G2 Project No. 220103

Latitude: N/A Longitude: N/A

Soil Boring No. B-1

CONSULTING GROUP

SUBSURFACE PROFILE				SOIL SAMPLE DATA					
ELEV. (ft)	PRO-FILE	GROUND SURFACE ELEVATION: 714.5 ft ±	DEPTH (ft)	SAMPLE TYPE-NO.	BLOWS/ 6-INCHES	STD. PEN. RESISTANCE (N)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	UNCONF. COMP. STR. (PSF)
		Fill: Dark Brown Sandy Gravel and Asphalt Debris (6 inches) 0.5							
		Fill: Loose Dark Brown and Brown Silty Sand with trace gravel		S-1	2 3 3	6			
		3.0							
709.5			5	S-2	3 5 6	11			
				S-3	3 4 5	9			
		Loose to Medium Compact Brown Sand with trace silt and gravel							
704.5			10	S-4	4 4 5	9			
				S-5	6 8 10	18			
699.5		15.0	15						
		End of Boring @ 15 ft							
694.5			20						

Total Depth: 15 ft
Drilling Date: February 24, 2022
Inspector:
Contractor: Strata Drilling, Inc.
Driller: D. Watkins

Drilling Method:
2-1/4 inch inside diameter hollow-stem augers

Water Level Observation:
12 feet during drilling

Notes:
Borehole collapsed at 11 ft after auger removal

Excavation Backfilling Procedure:
Auger cuttings

Figure No. 1

SOIL / PAVEMENT BORING 220103.GPJ 20150116 G2 CONSULTING DATA TEMPLATE.GDT 3/4/22

Project Name: Juan Blanco's Tacos + Tequila

Project Location: 1655 E. Auburn Road
Rochester Hills, Michigan 48307

G2 Project No. 220103

Latitude: N/A Longitude: N/A

Soil Boring No. B-2

G2 CONSULTING GROUP

SUBSURFACE PROFILE

SOIL SAMPLE DATA

ELEV. (ft)	PRO-FILE	GROUND SURFACE ELEVATION: 714.5 ft ±	DEPTH (ft)	SAMPLE TYPE-NO.	BLOWS/ 6-INCHES	STD. PEN. RESISTANCE (N)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	UNCONF. COMP. STR. (PSF)
		Topsoil: Dark Brown Silty Sand (4 inches) 0.3							
		Fill: Dark Brown and Brown Silty Sand 1.0		S-1	4 5 5	10			
709.5		Loose to Medium Compact Brown Silty Sand with little gravel	5	S-2	4 6 7	13			
				S-3	3 3 4	7			
		8.0							
704.5			10	S-4	4 4 5	9			
		Loose to Medium Compact Brown Gravelly Sand with trace silt							
699.5		15.0	15	S-5	6 7 8	15			
		End of Boring @ 15 ft							
694.5			20						

Total Depth: 15 ft
Drilling Date: February 24, 2022
Inspector:
Contractor: Strata Drilling, Inc.
Driller: D. Watkins

Drilling Method:
2-1/4 inch inside diameter hollow-stem augers

Water Level Observation:
12 feet during drilling

Notes:
Borehole collapsed at 10 ft after auger removal

Excavation Backfilling Procedure:
Auger cuttings

Figure No. 2

SOIL / PAVEMENT BORING 220103.GPJ 20150116 G2 CONSULTING DATA TEMPLATE.GDT 3/4/22

Project Name: Juan Blanco's Tacos + Tequila

Project Location: 1655 E. Auburn Road
Rochester Hills, Michigan 48307

G2 Project No. 220103

Latitude: N/A Longitude: N/A

Soil Boring No. B-3

CONSULTING GROUP

SUBSURFACE PROFILE				SOIL SAMPLE DATA					
ELEV. (ft)	PRO-FILE	GROUND SURFACE ELEVATION: 714.5 ft ±	DEPTH (ft)	SAMPLE TYPE-NO.	BLOWS/ 6-INCHES	STD. PEN. RESISTANCE (N)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	UNCONF. COMP. STR. (PSF)
		Fill: Loose Dark Brown Gravelly Sand with trace silt		S-1	3 4 4	8			
		3.0							
709.5		Loose Rust Brown Gravelly Sand with trace silt	5	S-2	3 3 4	7			
		5.0							
		Loose Brown Sand with trace silt and gravel		S-3	4 5 5	10			
704.5		10.0	10	S-4	4 4 6	10			
		End of Boring @ 10 ft							
699.5			15						
694.5			20						

Total Depth: 10 ft
Drilling Date: February 24, 2022
Inspector:
Contractor: Strata Drilling, Inc.
Driller: D. Watkins

Water Level Observation:
Dry during and upon completion

Excavation Backfilling Procedure:
Auger cuttings

Drilling Method:
2-1/4 inch inside diameter hollow-stem augers

Figure No. 3

SOIL / PAVEMENT BORING 220103.GPJ 20150116 G2 CONSULTING DATA TEMPLATE.GDT 3/4/22

Project Name: Juan Blanco's Tacos + Tequila

Project Location: 1655 E. Auburn Road
Rochester Hills, Michigan 48307

G2 Project No. 220103

Latitude: N/A Longitude: N/A

Soil Boring No. **B-4**

CONSULTING GROUP

SUBSURFACE PROFILE				SOIL SAMPLE DATA					
ELEV. (ft)	PRO-FILE	GROUND SURFACE ELEVATION: 714.0 ft ±	DEPTH (ft)	SAMPLE TYPE-NO.	BLOWS/ 6-INCHES	STD. PEN. RESISTANCE (N)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	UNCONF. COMP. STR. (PSF)
		Fill: Dark Brown Sandy Gravel and Asphalt Debris (8 inches) 0.7							
		Fill: Loose Brown Gravelly Sand with little silt, dark brown sandy clay layers		S-1	3 3 3	6			
		3.0							
709.0		Loose Rust Brown Silty Sand with trace clay and gravel 5.0	5	S-2	3 3 4	7			
		End of Boring @ 5 ft							
704.0			10						
699.0			15						
694.0			20						

Total Depth: 5 ft
Drilling Date: February 24, 2022
Inspector:
Contractor: Strata Drilling, Inc.
Driller: D. Watkins

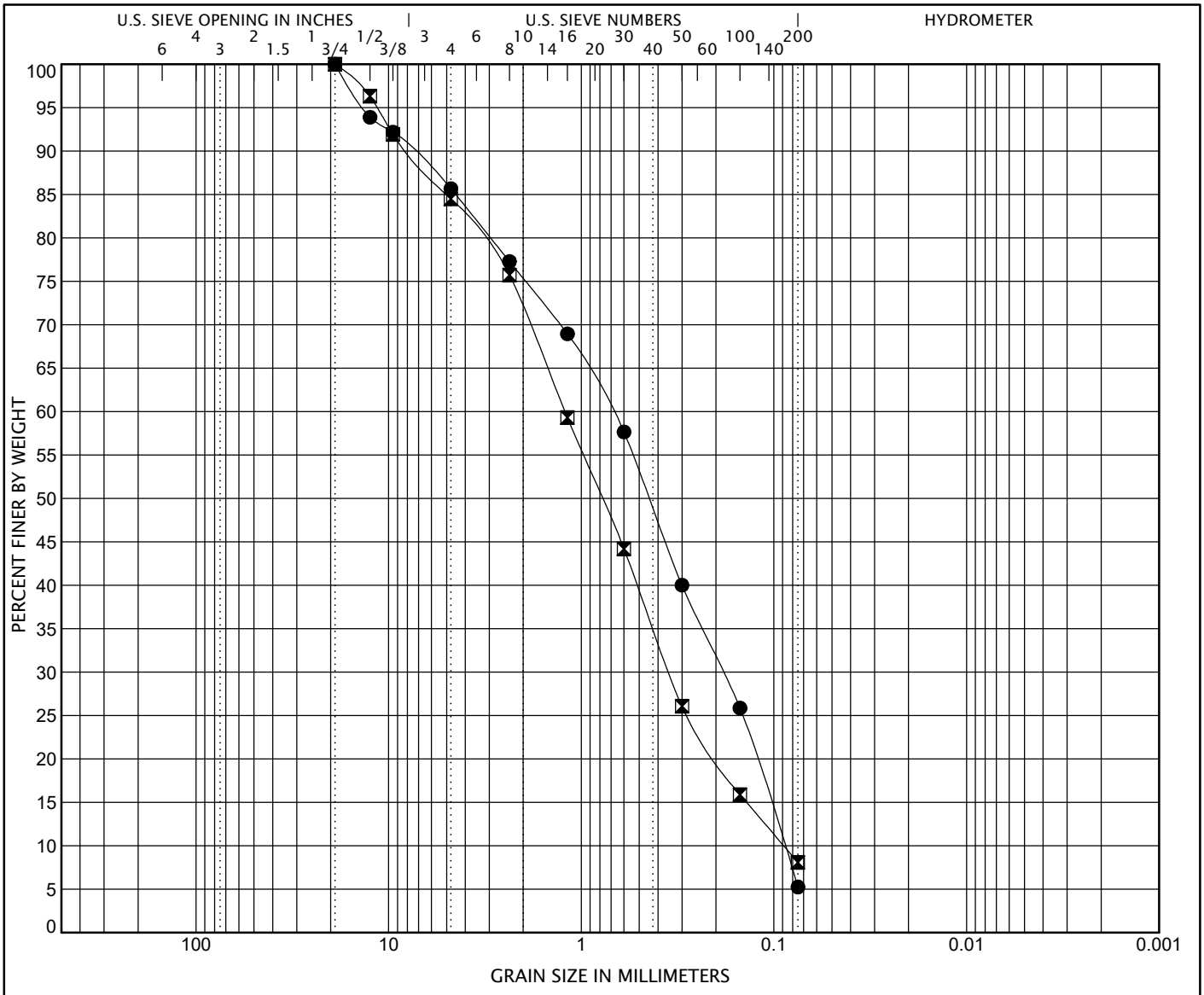
Water Level Observation:
Dry during and upon completion

Excavation Backfilling Procedure:
Auger cuttings

Drilling Method:
2-1/4 inch inside diameter hollow-stem augers

Figure No. 4

SOIL / PAVEMENT BORING 220103.GPJ 20150116 G2 CONSULTING DATA TEMPLATE.GDT 3/4/22



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen ID		Description	LL	PL	PI	Cc	Cu
●	B-3	S-1	Gravelly Sand with trace silt				0.6	7.8
⊠	B-3	S-2	Gravelly Sand with trace silt				1.1	13.7

	Specimen ID		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-3	S-1	19	0.691	0.184	0.088	14.3	80.4	5.3	
⊠	B-3	S-2	19	1.216	0.349	0.089	15.5	76.4	8.1	

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CONSULTING GROUP

GRAIN SIZE DISTRIBUTION

Project Name: Juan Blanco's Tacos + Tequila

Project Location: 1655 E. Auburn Road
Rochester Hills, Michigan 48307

G2 Project No.: 220103

Figure No. 5

GENERAL NOTES TERMINOLOGY

Unless otherwise noted, all terms herein refer to the Standard Definitions presented in ASTM 653.

PARTICLE SIZE

Boulders		- greater than 12 inches
Cobbles		- 3 inches to 12 inches
Gravel	- Coarse	- 3/4 inches to 3 inches
	- Fine	- No. 4 to 3/4 inches
Sand	- Coarse	- No. 10 to No. 4
	- Medium	- No. 40 to No. 10
	- Fine	- No. 200 to No. 40
Silt		- 0.005mm to 0.074mm
Clay		- Less than 0.005mm

CLASSIFICATION

The major soil constituent is the principal noun, i.e. clay, silt, sand, gravel. The second major soil constituent and other minor constituents are reported as follows:

Second Major Constituent (percent by weight)	Minor Constituent (percent by weight)
Trace - 1 to 12%	Trace - 1 to 12%
Adjective - 12 to 35%	Little - 12 to 23%
And - over 35%	Some - 23 to 33%

COHESIVE SOILS

If clay content is sufficient so that clay dominates soil properties, clay becomes the principal noun with the other major soil constituent as modifier, i.e. sandy clay. Other minor soil constituents may be included in accordance with the classification breakdown for cohesionless soils, i.e. silty clay, trace sand, little gravel.

Consistency	Unconfined Compressive Strength (psf)	Approximate Range of (N)
Very Soft	Below 500	0 - 2
Soft	500 - 1,000	3 - 4
Medium	1,000 - 2,000	5 - 8
Stiff	2,000 - 4,000	9 - 15
Very Stiff	4,000 - 8,000	16 - 30
Hard	8,000 - 16,000	31 - 50
Very Hard	Over 16,000	Over 50

Consistency of cohesive soils is based upon an evaluation of the observed resistance to deformation under load and not upon the Standard Penetration Resistance (N).

COHESIONLESS SOILS

Density Classification	Relative Density %	Approximate Range of (N)
Very Loose	0 - 15	0 - 4
Loose	16 - 35	5 - 10
Medium Compact	36 - 65	11 - 30
Compact	66 - 85	31 - 50
Very Compact	86 - 100	Over 50

Relative Density of cohesionless soils is based upon the evaluation of the Standard Penetration Resistance (N), modified as required for depth effects, sampling effects, etc.

SAMPLE DESIGNATIONS

AS - Auger Sample – Cuttings directly from auger flight
BS - Bottle or Bag Samples
S - Split Spoon Sample - ASTM D 1586
LS - Liner Sample with liner insert 3 inches in length
ST - Shelby Tube sample - 3 inch diameter unless otherwise noted
PS - Piston Sample - 3 inch diameter unless otherwise noted
RC - Rock Core - NX core unless otherwise noted

STANDARD PENETRATION TEST (ASTM D 1586) - A 2.0 inch outside-diameter, 1-3/8 inch inside-diameter split barrel sampler is driven into undisturbed soil by means of a 140-pound weight falling freely through a vertical distance of 30 inches. The sampler is normally driven three successive 6-inch increments. The total number of blows required for the final 12 inches of penetration is the Standard Penetration Resistance (N).